REMARKS

INTRODUCTION

In accordance with the foregoing, claims 1, 7, 11 and 12 have been amended. Claims 10 and 13-16 have been cancelled. Claims 1-9, 11 and 12 are pending in the application.

CLAIM REJECTIONS – 35 U.S.C. § 103

Claims 1, 2, 5 and 6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (U.S. 5,689,290) (hereinafter "Saito") in view of Chuang et al. (U.S. 5,708,957) (hereinafter "Chuang").

Claims 3 and 4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view of Chuang, and further in view of Kitagawa et al. (U.S. 6,264,855) (hereinafter "Kitagawa").

Claims 7 and 10-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view of Chuang.

Claims 8 and 9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view of Chuang, and further in view of Denton et al. (U.S. 6,293,143) (hereinafter "Denton").

Claims 14 and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view of Chuang.

Claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view of Chuang, and further in view of Kitagawa.

Saito

Saito discusses a liquid level detecting mechanism and ink jet recording apparatus having the mechanism. In Saito, an ink chamber 22 is provided with liquid level detecting means for detecting the ink level. Transparent windows 30, 31 made of a transparent material are provided in lower partial areas on the wall faces opposed to each other in the ink chamber 22. Outside of the transparent windows 30, 31 and with diaphragm members 32, 33 interposed, there is provided, on one side, a light emitting diode 34, and a phototransistor 35 on the other side, both of which are connected to an electrical circuit. Saito, 4:66-5:8 and Figure 3.

Chuang

Chuang discusses an optical sensor that uses a radio luminescent light source to supply the incident radiation for detecting a selected substance in a test medium. Chuang, Abstract. Further, Chuang discusses an optical sensor that is provided with a self-powered light source by the use of a radio luminescent material that includes a radioactive beta emitter constituent and a phosphor constituent energized by beta particles from the radioactive constituent to emit light. Chaung, 2:29-2:35.

Kitagawa

Kitagawa discusses a process for preparing water resistant luminous pigments including a pigment that is homogeneously dispersed in each kind of ink vehicle, paint vehicle or the like to give a luminous ink or a luminous paint. Kitagawa, 6:42-6:45.

Denton

Denton discusses an ink level sensing device and method including a digital signal generated as a result of the output change that is relayed to the printer control to signal a low ink level alarm. Denton, 4:56-4:60.

Claims 1-6

Amended claim 1 recites: "...a supporting member disposed ~~adjacent~~ to protrude inward from an interior surface of the ink tank..." Support for this amendment may be found at least in Figure 2 of the application. In contrast to amended claim 1, Saito discusses a liquid level detecting mechanism where the light source is outside of the ink tank. In Saito, the ink detecting means are placed outside of the ink tank and light is transmitted from the light source, through a window, across the ink tank, through another window and to the light detecting means. Saito does not discuss a supporting member disposed to protrude inward from an interior surface of the ink tank. Further, this deficiency in Saito is not cured by Chuang. As shown in Figures of the present application, the photo detector 20 of claim 1 is not disposed in the ink tank 10, and the supporting member 13 protrudes from the inside of the ink tank 10. However, the light detecting means of Saito and Chuang is disposed at the outside of the ink tank. Accordingly, the configuration of claim 1 can be distinguished from that of the Saito and Chuang.

The present application, as recited in claim 1, can prevent the self-luminous member 12 from being contaminated since the supporting member 13 protrudes from the inside of the ink tank 10. Additionally, the supporting member 13 and the luminous member 12 can be easily

installed without requiring a separate space, and the luminous member 12 can be easily replaced.

Claim 1 further recites: "...a luminous member comprising a self-luminous material and supported by the supporting member, the luminous member being capable of emitting light without using a powered light source..." As recited in claim 1, to detect ink level, claim 1 employs self-luminous member, whereas Saito and Chuang require separate luminous members. In detail, Saito employs the light emitting diode 34 and the light receiving means 35, and Chuang employs the radioluminescent light (RL) source 30 to detect ink level.

Claims 2-6 depend on claim 1 and are therefore believed to be allowable for at lest the foregoing reasons. Further, claims 2, 5 and 6 recite features that patentably distinguish over Saito, Chuang and Kitagawa, taken alone or in combination. For example, claim 3 recites that the luminous member is a luminous paper.

Withdrawal of the foregoing rejection is requested.

Claims 7-13

Amended claim 7 recites: "...an inwardly protruding supporting member disposed at a surface of the ink tank to detect when the ink is low..." Support for this amendment may be found in at least original claim 10 and Figure 2 of the specification. Similar to the argument for claim 1, in contrast to claim 7, Saito does not discuss an inwardly protruding supporting member. Chuang does not supply this deficiency in Saito.

Claims 10 and 13 have been cancelled. Claims 8, 9, 11 and 12 depend on claim 7 and are therefore believed to be allowable for at lest the foregoing reasons. Further, claims 8, 9, 11 and 12 recite features that patentably distinguish over Saito, Chuang and Denton, taken alone or in combination. For example, claim 8 recites a controller controlling operations of the inkjet printer and outputting a signal indicative that the level of ink is lower than the predetermined level to an output device.

Withdrawal of the foregoing rejection is requested.

Claims 14-16

Claims 14-16 have been cancelled.

CONCLUSION

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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